

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-2 and 4-13 are pending in this application. Of these claims, claims 10-13 are withdrawn from consideration. Claims 1 and 10 are independent. The remaining claims depend, directly or indirectly, from claim 1 or 10.

Claim Amendments

Independent claim 1 has been amended to clarify the order of each step. No new subject matter has been added by way of these amendments, as support for these amendments may be found, for example, in Figures 4 and 5.

Rejection(s) under 35 U.S.C. § 102

Claims 1, 2, 4, 6, and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Admitted Prior Art (hereinafter "APA"). Independent claim 1 has been amended by way of this reply as explained above. To the extent that this rejection may still apply to the claims, the rejection is respectfully traversed.

MPEP § 2131 makes it clear that a claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference. Applicant respectfully asserts that APA does not show or suggest all of the limitations of amended independent claim 1.

One or more embodiments of the invention are directed to a method for measuring high-energy radiation accurately (*see* Publication of the Specification, paragraph [0053]). With reference to Figures 4 and 5, for example, an ion transport voltage is turned on in step 52, then, an ion current is measured in step 53, and, then, a leakage current is measured in step 55. Then, “[t]he difference between the measurements taken in step 53 and 55 is then used to derive the ion currents that result from high-energy radiation flux” (*see* Publication of the Specification, paragraph [0035]). That is, in particular, when measuring an ion current signal, an ion chamber is pulsed by a voltage applied between the electrodes (*see* Publication of the Specification, paragraph [0029]).

Accordingly, amended independent claim 1 requires, in part, applying a voltage pulse for a predetermined time between electrodes in an ion chamber, wherein the ion chamber is filled with a gas capable of forming charged ions by high-energy radiation, then, measuring an ion current signal related to ion currents induced by the voltage pulse while the voltage pulse is being applied to the electrodes, then, measuring a leakage current signal after the voltage pulse has been turned off and after ion transport has stopped, and, then, determining a magnitude of the high-energy radiation flux dependent on the ion current signal and the leakage current signal.

In contrast, APA fails to show or suggest at least, “applying a voltage pulse for a predetermined time between electrodes in an ion chamber” and “measuring an ion current signal related to ion currents induced by the voltage pulse while the voltage pulse is being applied to the electrodes,” as required by amended independent claim 1. In fact, APA clearly states that the ion chamber is maintained at an equilibrium voltage such as a constant voltage.

Specifically, the publication of the Specification clearly states that, “[i]n a conventional setup described above, the ion chamber (or counter) is maintained at an equilibrium voltage V.sub.0 (i.e., constant voltage mode) so that it is ready to detect constant flux of high-energy radiation (e.g., the ion chamber for detecting neutron flux shown in FIG. 1) or pulses of high-energy radiation (e.g., proportional counters or Geiger-Mueller counters for detecting gamma rays). In contrast to APA, the publication of the Specification clearly states that, “[i]n contrast, embodiments of the invention use ion chambers in a pulsed voltage mode, in which the potential applied across the electrodes in the ion chamber is pulsed. That is, an ion chamber in accordance with embodiments of the invention is not maintained at an equilibrium voltage. Embodiments of the invention may use pulses of ion transport drive voltages (i.e., voltage pulses) to monitor or measure neutron flux or other ion generation in a steady state” (*see, e.g.,* Publication of the Specification, paragraphs [0029]).

That is, APA discloses the completely opposite in that the ion chamber of APA is maintained at an equilibrium voltage such as a constant voltage. Therefore, APA necessarily cannot show or suggest, “applying a voltage pulse for a predetermined time between electrodes in an ion chamber” and “measuring an ion current signal related to ion currents induced by the voltage pulse while the voltage pulse is being applied to the electrodes,” as required by amended independent claim 1.

Furthermore, in response to the arguments advanced in the previous Response, the Examiner alleges that the order of the steps recited in claim 1 may be considered in different way, alleging that APA, the procedure of zeroing out a detector, and the BASIC ELECTRICAL SAFETY, disclose all the limitations required by independent claim 1 (*see* Office Action dated September 10, 2007, at page 4). Applicant respectfully disagrees. However, in the interest of

expediting prosecution, independent claim 1 has been amended to clarify the order of each step as recited in amended independent claim 1. Therefore, now, clearly, APA fails to show or suggest the specific combination of the steps in the order as recited in amended independent claim 1.

Finally, the procedure of zeroing out a detector and the BASIC ELECTRICAL SAFETY, like APA fail to disclose or suggest that which APA lacks. This is evidenced by the fact that the procedure of zeroing out a detector and the BASIC ELECTRICAL SAFETY are relied on solely to provide zeroing out a detector before using it (*see* Office Action dated April 27, 2007, at pages 6-10).

In view of above, APA, the procedure of zeroing out a detector, and the BASIC ELECTRICAL SAFETY, whether considered separately or in combination, fail to show or suggest the invention as recited in amended independent claim 1. Dependent claims are allowable for at least same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection(s) Under 35 U.S.C § 103

Claims 1, 2, and 4-9 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over APA as applied to claim 1, 2, and 4-9 in view of any of Frommer, Experiment 2-8, or Spanswick. Claims 5 and 9 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over APA as applied to claims 1, 2, and 4-9, and further in view of U.S. Patent No. 6,889,152 to More (hereinafter "More"). Claims 5 and 9 also stand rejected under 35 U.S.C. 103 (a) as being unpatentable over APA in view of any of Frommer, Experiment 2-8, or Spanswick, as applied to

claims 1, 2, and 4-9, and further in view of More. Independent claim 1 has been amended by way of this reply as explained above. To the extent that this rejection may still apply to the claims, the rejection is respectfully traversed.

As discussed above, amended independent claim 1 is patentable over APA, the procedure of zeroing out a detector, and the BASIC ELECTRICAL SAFETY. Frommer, Experiment 2-8, Spanswick, and More, like APA, the procedure of zeroing out a detector, and the BASIC ELECTRICAL SAFETY, fail to show or suggest the claimed invention as recited in amended independent claim 1, and fail to supply that which APA, the procedure of zeroing out a detector, and the BASIC ELECTRICAL SAFETY lack.

Specifically, Frommer, Experiment 2-8, Spanswick, and More also fail to show or suggest at least above limitations and the specific combination of steps as required by amended independent claim 1. This is evidenced by the fact that Frommer, Experiment 2-8, and Spanswick are relied on merely to provide the procedure of zeroing out a detector (*see, e.g.*, Office Action dated April 27, 2007, at pages 7 and 10). This is also evidenced by the fact that More is relied on merely to provide the details such as adjusting gain of amplifier and applying a ramping voltage (*see, e.g.*, Office Action dated April 27, 2007, at pages 10-12).

In view of the above, APA, the procedure of zeroing out a detector, the BASIC ELECTRICAL SAFETY, Frommer, Experiment 2-8, Spanswick, and More, whether considered separately or in combination, fail to show or suggest the present invention as claimed in amended independent claim 1. Thus, amended independent claim 1 is patentable over APA, the procedure of zeroing out a detector, the BASIC ELECTRICAL SAFETY, Frommer, Experiment 2-8, Spanswick, and More, for at least the reasons set forth above. Dependent claims are allowable


for at least the same reasons. Accordingly, withdrawal of these rejections is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591, Reference No. 07754/046001.

Dated: January 2, 2008

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